

California Water Commission

Pacheco Reservoir Expansion

Unique Opportunity for Fisheries Recovery, Flood Risk Reduction and Emergency Water Supply

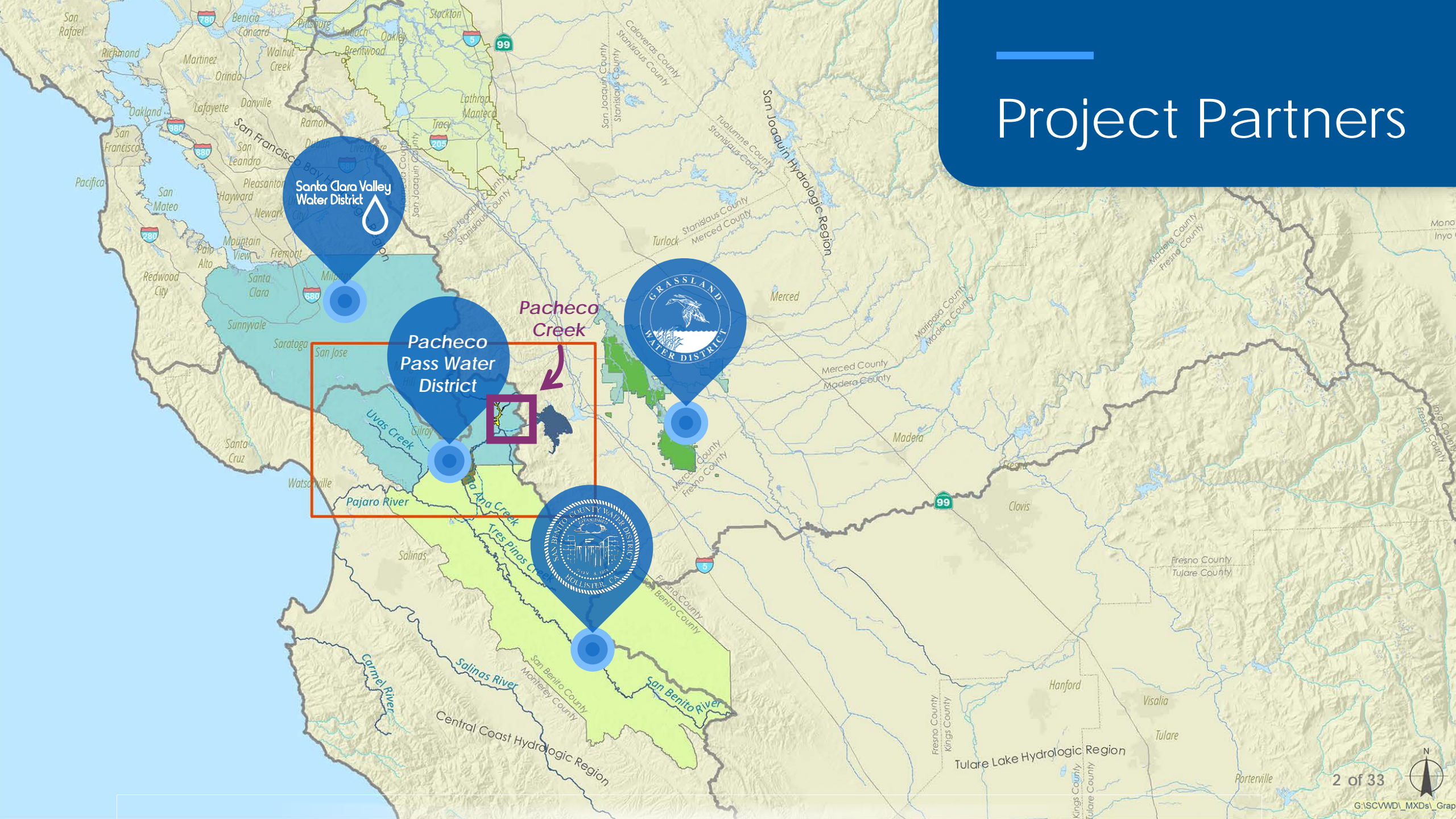
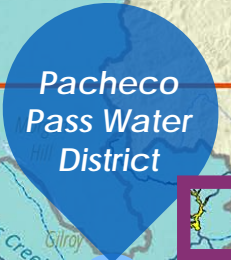
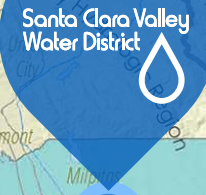
December 13, 2017



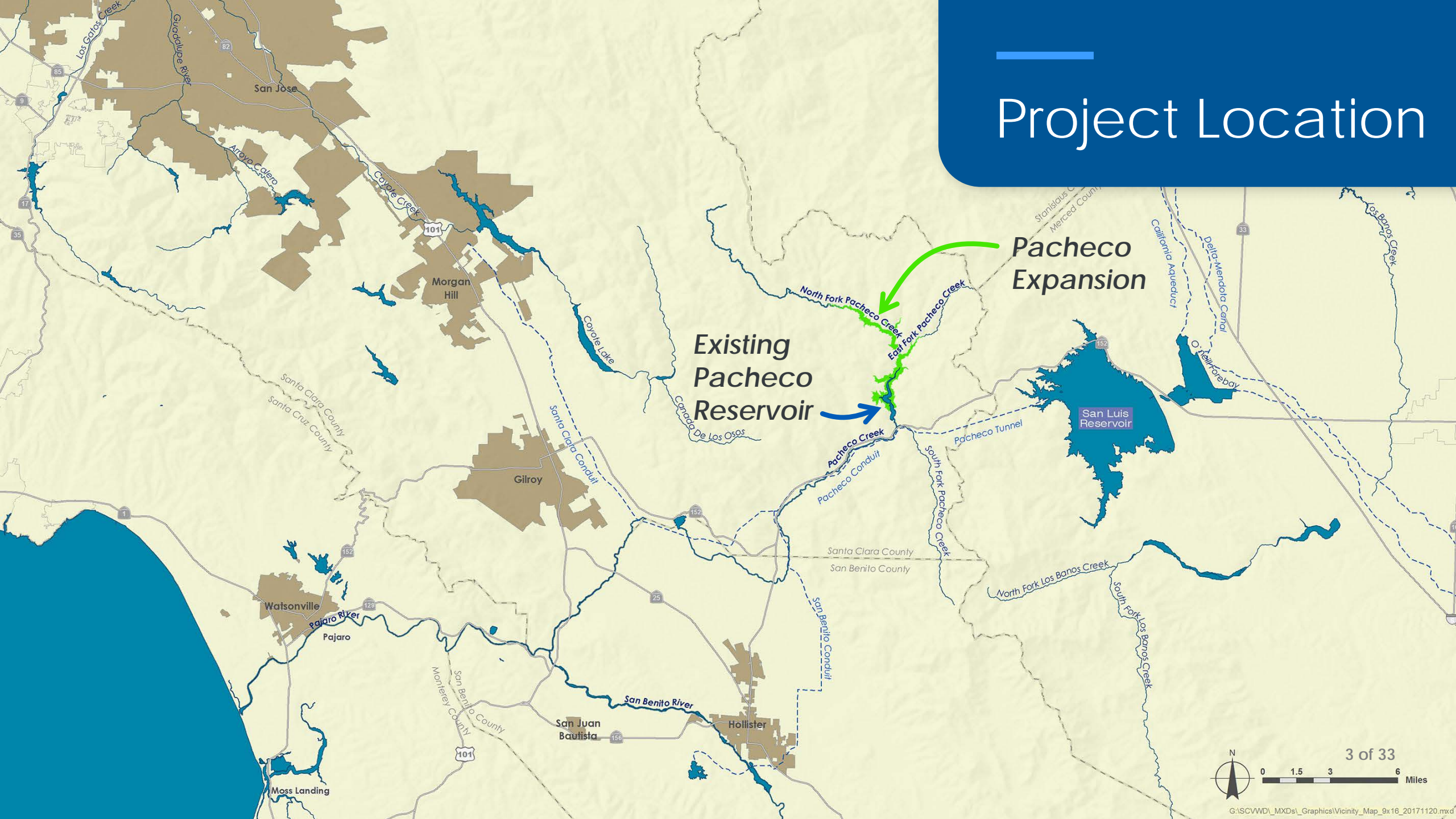
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Project Partners



Project Location



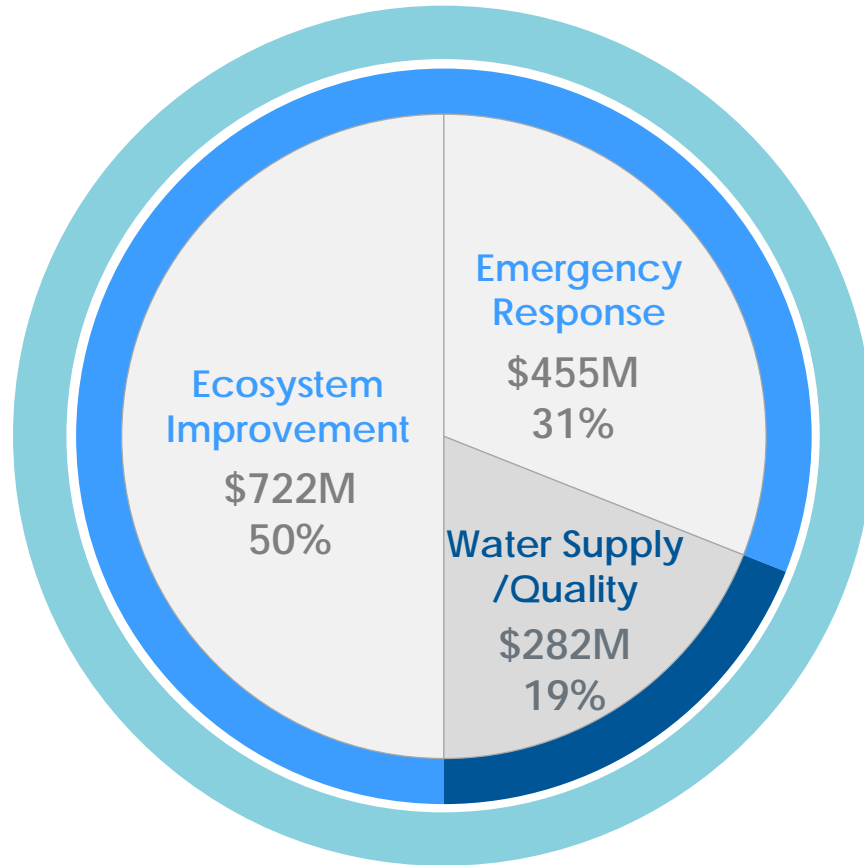
Existing
Pacheco
Reservoir

Pacheco
Expansion

San Luis
Reservoir



The Project Delivers a High Percentage of Public Benefits



81%
Public Benefits

2.43
Public Benefit Ratio



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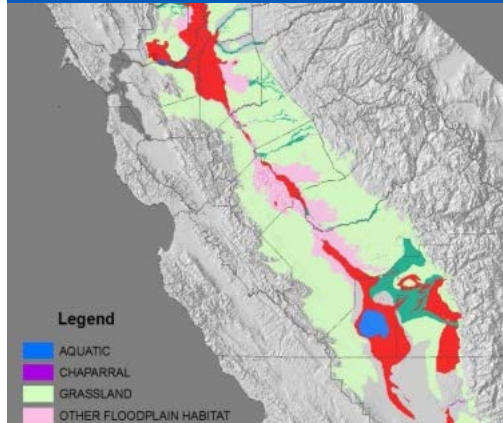
The Partners Seek to Address Five Big Challenges

Restore Federally Threatened Fish



90% population decline in Pajaro watershed from 1960s to 1990s

Improve the Delta



90% of Delta watershed wetlands have disappeared

Improve Resiliency and Emergency Water Supply



66% chance of Delta earthquake in next 50 years; 45% of water supply imported from Delta

Eliminate Water Quality Issues in San Luis Reservoir



Water quality issues during summer months in 57% of years

Reduce Flooding to Disadvantaged Communities



Extensive flooding even for frequent/small events; 20-year flood in 2017 (pictured)



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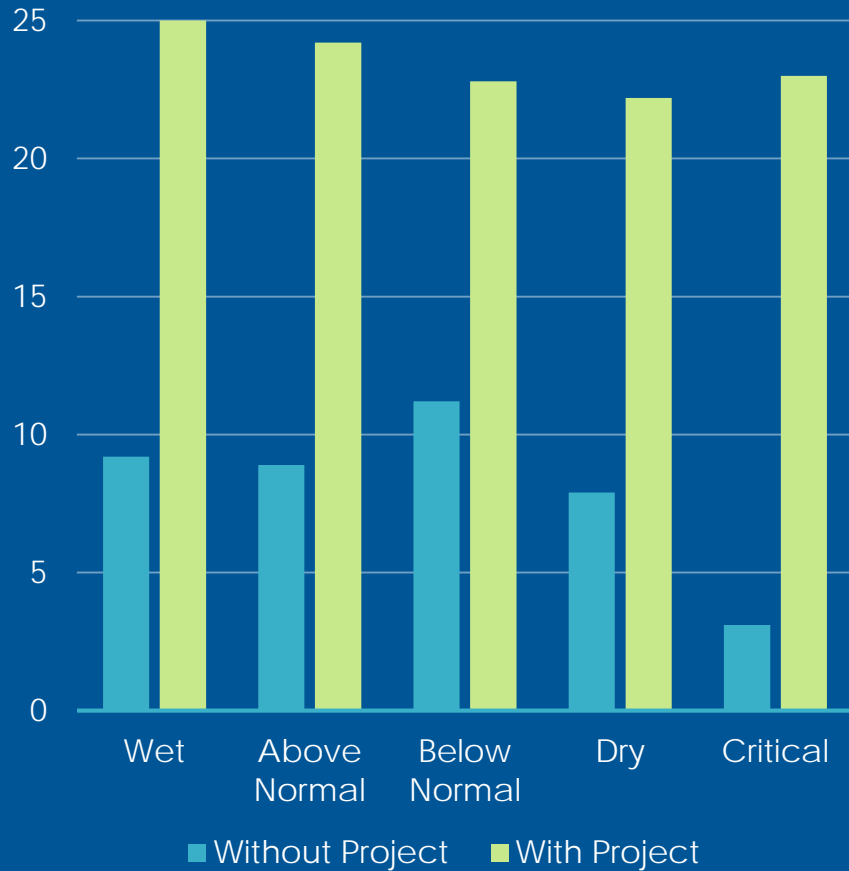
The Reservoir Expansion will Provide Public Solutions



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Cohort Score



Enables Federally Threatened Steelhead Recovery

The project will improve conditions in watershed critical to recovery

- Improves water flow in Pacheco Creek in all hydrologic conditions
- Larger cold water pool improves temperature in Pacheco Creek
- Increases SCCC Steelhead cohort score between 162% (2030) and 178% (2070)
- Enables growth of an independent population in the Pajaro River watershed



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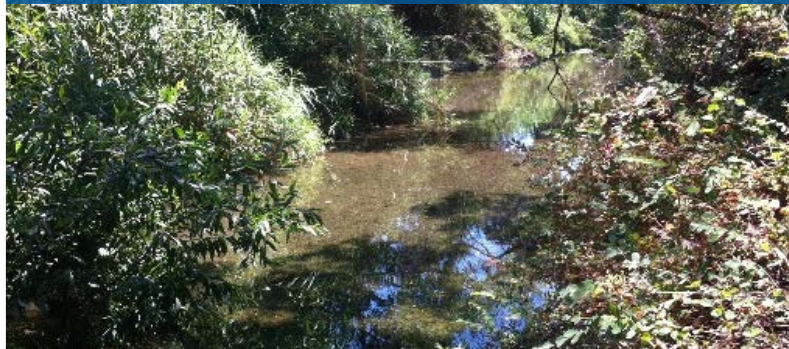




Dry Pacheco Creek - August 2014



1.3 cfs flow - July 2016



Pacheco Creek will have enhanced flow



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Santa Clara Valley
Water District





Enhances Bay-Delta Ecosystem

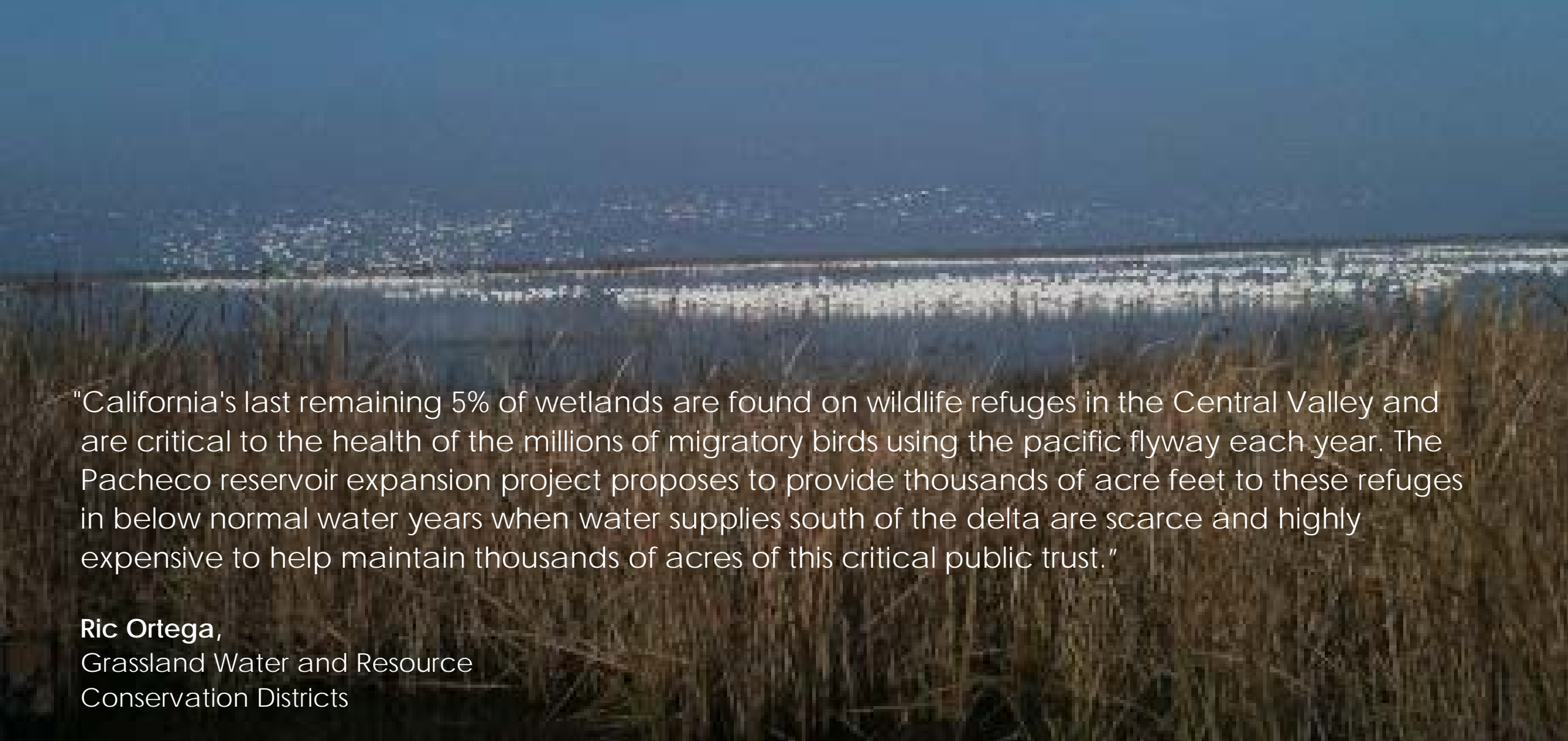
Increased water supplies to Delta watershed refuges

- Dedicates irrigation to wetlands in below-normal water years
- Increases food supply for migrating Pacific Flyway waterfowl in the fall and winter



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"California's last remaining 5% of wetlands are found on wildlife refuges in the Central Valley and are critical to the health of the millions of migratory birds using the Pacific flyway each year. The Pacheco Reservoir Expansion project proposes to provide thousands of acre feet to these refuges in below normal water years when water supplies south of the delta are scarce and highly expensive to help maintain thousands of acres of this critical public trust."

Ric Ortega,
Grassland Water and Resource
Conservation Districts



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Reduces Flooding in Disadvantaged Communities

The project will protect disadvantaged and vulnerable communities against flooding

- Decreases flood flows from North Fork Pacheco Creek by up to 61%
- Reduces downstream 100-year flood flows by up to 4,700 cfs
- With the new reservoir, 2017 flood flows in North Fork Pacheco Creek would have been fully contained

Pictured above: Hollister 2014 flooding



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Algae Bloom
in San Luis
Reservoir

Eliminates San Luis Low Point Water Quality Issues

*The project reduces operational
constraints at San Luis Reservoir*

Prevents 73 months of impaired water quality deliveries (2030) and 109 months (2070) by:

- Delivering CVP supplies to the Pacheco Reservoir earlier in the season
- Capturing Pacheco watershed supplies in the expanded reservoir
- Using the Pacheco Reservoir as a blending source when needed.

Thus, project operations will avoid spikes in taste and odor measuring 10 times normal levels, which cause problems in today’s domestic supply



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Delta levee
failure,
Jones Tract

Emergency Water Supply

The project will provide dedicated emergency water supply

- Increases emergency water supply in 2030 and 2070 by 82,000 and 87,000 acre-feet
- Increases local surface storage capacity by 90%
- Mitigates risk of Delta export outages and imported water conveyance outages



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The Project will Enhance Water Supply for Agriculture and M&I

The project will reduce drought risk to agricultural and M&I water users

- Increases water supply by up to 20,000 acre-feet in dry years
- Improves groundwater conditions to agricultural customers
- Materially contributes to sustainable groundwater management goals in four basins



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The Environmental Benefits are Compelling



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High Relative Environmental Value -- Addresses 11 of 16 Ecosystem Priorities

- ✓ **P 1** Provide cold water at times and locations to increase the survival of salmonid eggs and fry.
- ✓ **P 2** Provide flows to improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids.
- ✓ **P 3** Maintain flows and appropriate ramping rates at times and locations that will minimize dewatering of salmonid redds and prevent stranding of juvenile salmonids in side channel habitat
- ✓ **P 4** Improve ecosystem water quality. Dissolved oxygen, turbidity, coliform
- ✓ **P 5** Provide flows that increase dissolved oxygen and lower water temperatures to support anadromous fish passage
- ✓ **P 8** Maintain or restore groundwater and surface water interconnection to support instream benefits and groundwater dependent ecosystems.

- ✓ **P 9** Enhance flow regimes or groundwater conditions to improve the quantity and quality of riparian and floodplain habitats for aquatic and terrestrial species.
- ✓ **P 11** Enhance the temporal and spatial distribution and diversity of habitats to support all life stages of fish and wildlife species
- ✓ **P 12** Enhance access to fish spawning, rearing, and holding habitat by eliminating barriers to migration
- ✓ **P 14** Provide water to enhance seasonal wetlands, permanent wetlands, and riparian habitat for aquatic and terrestrial species on State and Federal wildlife refuges and on other public and private lands
- ✓ **P 16** Enhance habitat for native species that have commercial, recreational, scientific, or educational uses

- P 6** Increase attraction flows during upstream migration to reduce straying of anadromous species into non-natal tributaries
- P 7** Increase Delta outflow to provide low salinity habitat for Delta smelt, longfin smelt, and other estuarine fishes in the Delta, Suisun Bay, and Suisun Marsh
- P 10** Enhance the frequency, magnitude, and duration of floodplain inundation to enhance primary and secondary productivity and the growth and survival of fish
- P 13** Remediate unscreened or poorly screened diversions to reduce entrainment of fish
- P 15** Develop and implement invasive species management plans utilizing techniques that are supported by best available science to enhance habitat and increase the survival of native species



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High Resiliency – Low Risk

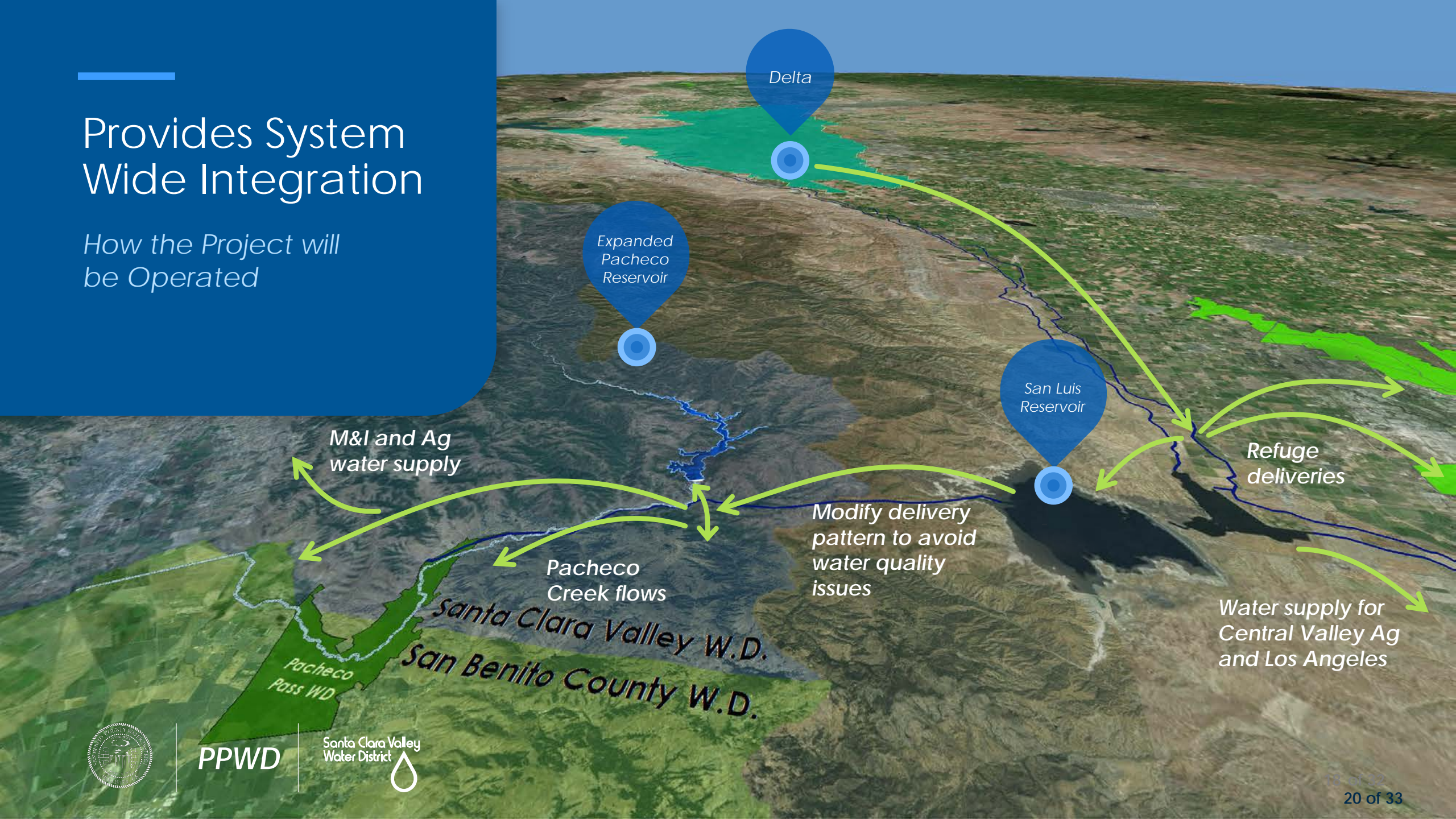


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Provides System Wide Integration

How the Project will be Operated



Delta

Expanded Pacheco Reservoir

San Luis Reservoir

M&I and Ag water supply

Refuge deliveries

Modify delivery pattern to avoid water quality issues

Water supply for Central Valley Ag and Los Angeles

Pacheco Creek flows

Santa Clara Valley W.D.
San Benito County W.D.

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Santa Clara Valley Water District

The Project Performs Well in an Uncertain Future

Uncertainty Scenarios

All Public Benefits **Maintained/Increased**

Public Benefit	Project Benefits Performance Under Uncertainty Scenarios
Ecosystem Improvement - Delta Watershed (acre-feet)	Maintained in all uncertainty scenarios
Ecosystem Improvement - Pacheco Creek (% increase in Cohort Score)	Maintained or improved in all uncertainty scenarios
Emergency Response (acre-feet)	Improved in all uncertainty scenarios

Drought

All Public Benefits **Maintained/Increased**

Public Benefit	Project Benefits Under Drought
Ecosystem Improvement - Pacheco Creek (% increase in Cohort Score)	Significantly improved performance during drought
Emergency Response (acre-feet)	Maintained during drought



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Broad Statewide Support

Supported by:

- Business
- Agriculture
- Disadvantaged community advocates
- Labor groups
- Cities/Counties
- Water agencies
- Elected officials
- Natural resources groups



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Successful Implementation Builds on Track Record and Financial Strength

*Established Operator:
Santa Clara Valley Water District*

- 800 Employees
- Manages 10 existing dams/reservoirs, constructed beginning in the 1930's
- Provides water supply, flood protection, and stewardship of streams
- Serves 1.9 million people in Silicon Valley
- Demonstrates excellent financial stewardship in funding its capital projects
- DSOD letter regarding Pacheco: "We are pleased that SCVWD with its expertise and resources are pursuing this Enlargement Project"

Pictured above: Lexington Reservoir



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Project Partners have Technical and Financial Ability to Meet all WSIP Milestones

**November
2021**

Draft EIS/EIR

**October
2023**

ROD/NOD

**January
2024**

Final Commission
Consideration

Permits

**February
2024**

Construction
Contract Award

**May
2024**

Construction
Mobilization

**Late Spring
2025**

Public Benefits
Begin to Accrue

**September
2028**

Start of Project
Operations



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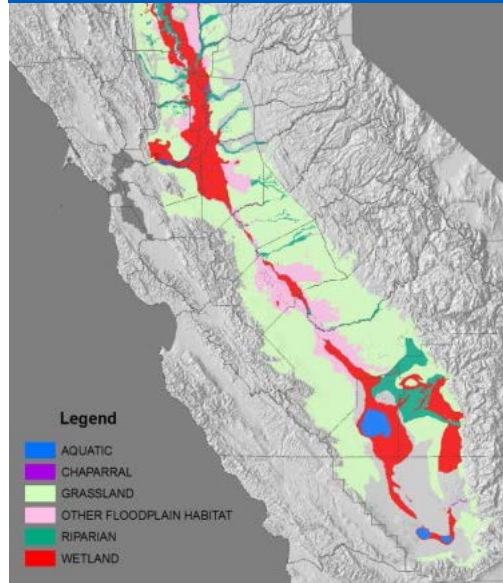


Recap: The Project will Achieve Five Important Public Benefits

Enhances steelhead habitat



Supplies Delta refuges



Provides emergency supply



Resolves water quality problem



Supports disadvantaged communities

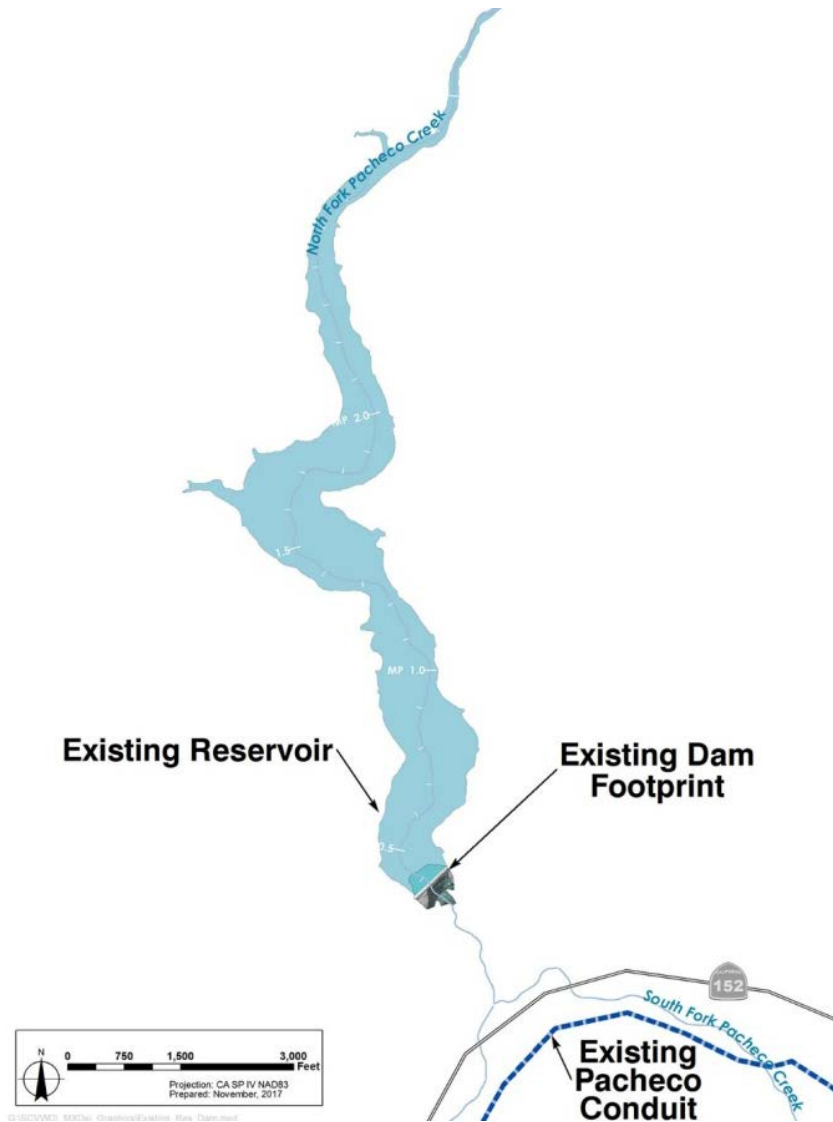


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Existing Pacheco Reservoir Facilities

- Existing Dam/Reservoir
 - 6,000 acre-foot reservoir
 - 100-foot-tall earth embankment dam
 - Concrete spillway

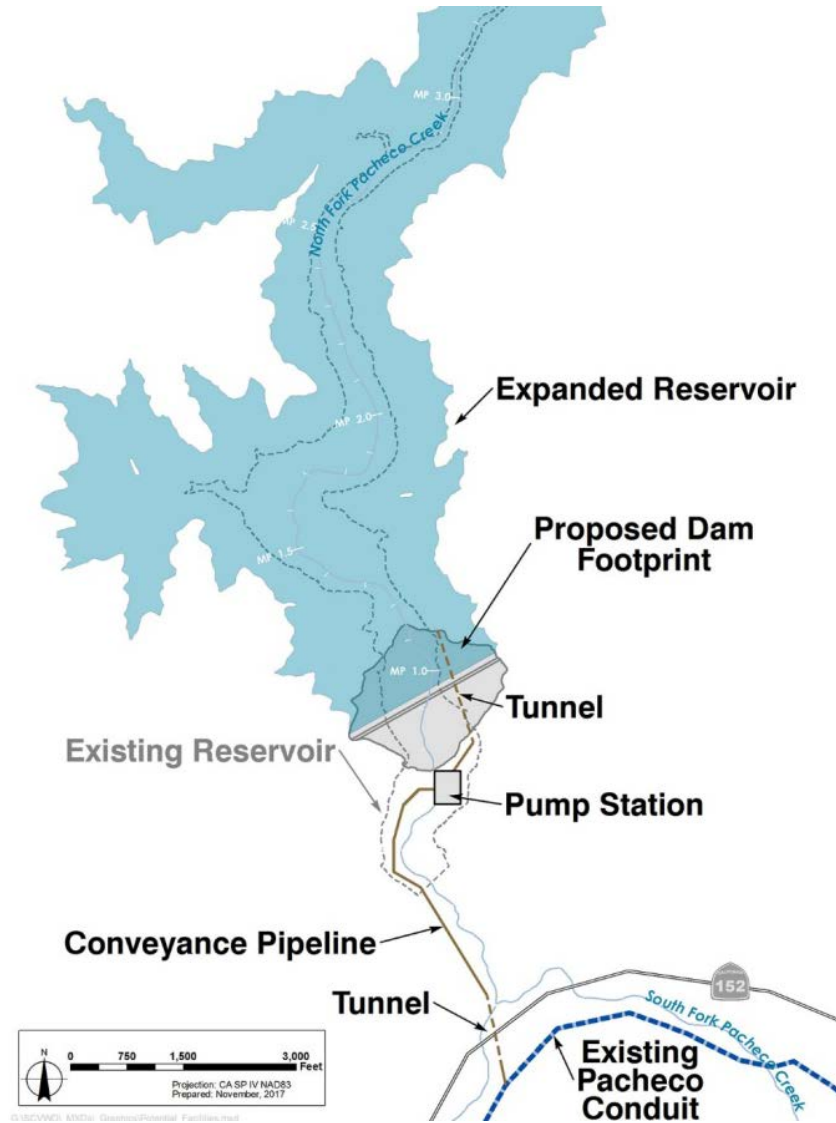


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Proposed Pacheco Reservoir Facilities

- Expanded Dam/Reservoir
 - 140,000 acre-foot reservoir
 - New 319-foot earth embankment dam
 - Concrete spillway
- Conveyance between Pacheco Conduit and expanded reservoir
 - 1-Mile tunnel/pipeline
 - Pump station
 - Selective level inlet/outlet structure within reservoir
- New regulating tank near San Luis Reservoir



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Affected Water Facilities



Existing Pacheco Reservoir and North Fork Dam

San Luis Reservoir and CVP San Felipe Division Facilities

Federal/State/Local conveyance facilities to deliver refuge supplies

Santa Clara Valley W.D.
San Benito County W.D.
Pacheco Pass WD



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Improves Federal, State, and Regional Operational Flexibility

Combined Pacheco-San Luis Reservoirs

- Reduced operational constraints and increase effective storage
- Improved water quality
- Improved transfer and exchange opportunities

Federal/State/Regional Operational Flexibility

- Reduced Delta pumping during critical biological periods
- Increased flexibility for refuge deliveries
- Increased flexibility for Semitropic storage and conveyance facilities
- Increased emergency supplies for other regional users (non-project partners)



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Damaged Spillway of Existing Dam

New Facilities will Replace a Damaged 78-year-old Infrastructure

Without repairs satisfactory to DSOD, the reservoir will be drained and downstream fisheries will be impacted

Replacement will:

- Reduce risks to human health and safety and improve fisheries habitat
- Maintain groundwater recharge benefits for Pacheco Pass Water District

DSOD letter regarding Pacheco:
"We are pleased that SCVWD with its expertise and resources are pursuing this Enlargement Project"



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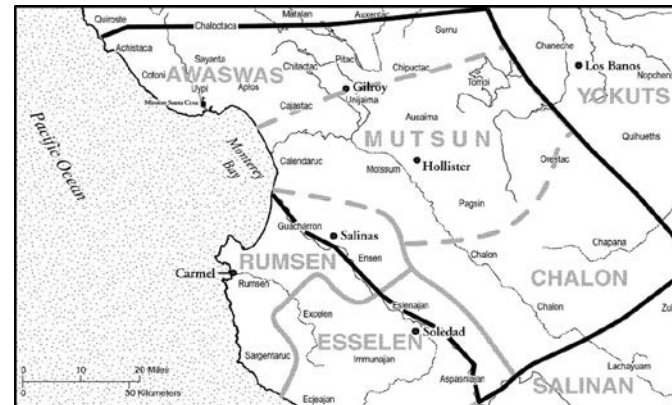


Respecting Native American Resources

Objective:

To preserve and guard the history and cultural resources of California Native American tribes

- Coordinating with nine tribes on a Tribal Consultation and Outreach Plan



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The Project Performs well in an Uncertain Future

Uncertainty Scenarios

All Public Benefits **Maintained/Increased**

Public Benefit	Base	Uncertainty Scenarios	Project Benefits Performance Under Uncertainty Scenarios
Ecosystem Improvement - Delta Watershed (acre-feet)	2,000	2,000	Maintained in all uncertainty scenarios
Ecosystem Improvement - Pacheco Creek (% increase in Cohort Score)	178%	178% to 278%	Maintained or improved in all uncertainty scenarios
Emergency Response (acre-feet)	82,000	83,000 to 107,000	Improved in all uncertainty scenarios

Drought

All Public Benefits **Maintained/Increased**

Public Benefit	Base	Drought Period	Project Benefits Under Drought
Ecosystem Improvement - Pacheco Creek (% increase in Cohort Score)	178%	586%	Significantly improved performance during drought
Emergency Response (acre-feet)	82,000	61,000 to 111,000; average 81,000	Maintained during drought



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The Case for Pacheco Reservoir Expansion

Project Scope

- Funding ask: \$484.5 million
- Resolves or measurably contributes to high-stakes challenges in Bay-Delta watershed
- Serves both urban and rural communities

Benefits

- Enhances Bay-Delta watershed ecosystem, including vital refuges and wetlands
- Enables federally threatened species recovery
- Increases emergency water supply to Silicon Valley economic hub
- Provides critical flood control by reducing Pacheco Reservoir releases
- Boosts M&I water supply during drought periods
- Eliminates San Luis low point water quality issues
- Replaces damaged dam with new facilities

Environmental Value

- Addresses 11 of 16 Relative Environmental Value Priorities

High Resiliency, Low Risk

- Improves federal, state, and local operational flexibility
- All public benefits maintained or increased in the face of uncertainty
- Established partner and broad support ensure successful implementation

Getting Started

- Positioned to meet all WSIP milestones



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